Statistical Normality Assessment:

1. A random sample of 20 college bound juniors found on average they visited 6.4 colleges with a standard deviation of 1.9. Estimate and interpret a 95% confidence interval for the true mean of juniors who visited colleges.
2. The proportion of students at a private school is 11%. A random sample of 450 students from a wide geographical area indicated that 55 attended private school. Estimate the true proportion of students attending a private school with 95% confidence. How does your estimate compare with 11%?
3. Suppose we want to know the average of a Florida State College Student. We want to be accurate to within .5 years with 99% confidence. From a previous study, we know the standard deviation of the population is 2.9 years. Determine how large I need my sample to be to satisfy these conditions.
4. Scores on the American College Testing (ACT) college entrance exam follow the normal distribution with mean 18 and standard deviation of 6. John’s standard score was –0.7.
5. How far away from the average was John?
6. Find John’s actual score.
7. Do you think John’s percentile ranking is high or low? Justify your answer.
8. ***Calculate*** his percentile ranking.

For the following, select the best answer that satisfies the question:

1. A public opinion poll was conducted on behalf of Mayor Ortega’s reelection campaign shortly before the elected. 264 out of 550 likely voters said they would vote for Mayor Ortega; the rest said they would vote for the other candidate. Which statement is least appropriate to make, according to the results of this study?
2. There is a 48% change that Major Ortega will win the election.
3. The point estimate, , for Mayor Ortega is 48%.
4. It is most likely that between 44% and 52% of voters will vote for Mayor Ortega.
5. Due to the margin of error, an inference cannot be made regarding whether Mayor Ortega or his opponent is most likely to win the election.

The next four questions use this information: The length of pregnancy isn’t always the same. In pigs, the length of pregnancies varies according to a normal distribution with mean of 114 days and standard deviation of 5 days.

1. What range covers the middle 95% of pig pregnancies?
2. 109 to 119
3. 104 to 124
4. 99 to 129
5. 94 to 134
6. What percent of pig pregnancies are longer than 114 days?
7. 16%
8. 34%
9. 50%
10. 84%
11. What percent of pregnancies are longer than 109 days?
12. 16%
13. 34%
14. 50%
15. 84%
16. A poll of 1190 adults finds that 702 prefer balancing the budget over cutting taxes. The announced margin of error for this result is . The news report states the confidence level is 95%.
17. What is the value of the sample proportion, , who prefer balancing the budget?
18. What is the confidence interval and explain its meaning within context.